



**PRIVATE PILOT GROUNDSCHOOL
CROSS-COUNTRY PLANNING EXAMPLE**

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Chapter 1

Introduction

1.1 The Flight

This is not a tale of derring-do and high adventure. The flying described in this booklet was for the most part prosaic and no great feats of airmanship were required.

In August 2008 my wife Alison and I took a flight in our Cessna 172, FPTN, along the north shore of the St Lawrence river from Ottawa Rockcliffe to Lourdes-de-Blanc-Sablon on the Québec/Labrador border and back.

This booklet describes some of the flight planning decisions made and some typical situations met in the air and on the ground. It is hoped that it will be of interest to students working towards a Private Pilot licence, to illustrate how flight planning is carried out in practice.

The trip illustrates some of the more obscure parts of general-aviation flying (e.g., flying IFR in uncontrolled airspace) as well as many of the common issues met on almost every flight.

To follow the trip you will need either an extensive knowledge of the north shore of the St Lawrence river or a map. The entire trip is contained on the *En Route* Low Altitude Chart LO-7. If you prefer the detail of VNCs, then the Montréal, Chicoutimi and Anticosti maps will be needed. A simple map (from Google Maps) of the return part of the trip can be found on page 27 of this booklet.

1.2 Background to the Flight Planning

Some readers may consider the flights described below to be short—varying from about an hour to about two and a half hours (see the summary in table 13.1 on page 42). My wife and I try to plan flights of no more than two and a half hours for two main reasons:

1. so that, with a five hour fuel tank, fuel management never becomes a major concern
2. because the seats in our elderly Cessna 172 tend to become uncomfortable after sitting still for that length of time

Since this was a holiday trip, the selection of the precise legs to be flown was left more-or-less until the time of departure, our only intention being to reach Lourdes-de-Blanc-Sablon at some time. This, together with the lack of specific deadlines, obviously permitted a lot more flexibility in choices of routes than would have been the case if we had to reach a specific airport by a specific time. Of course, this way of travelling means that we had to be flexible about overnight accommodation and ground transportation—booking rooms in advance is not a good idea because it could put pressure on the pilot to fly in unsuitable weather conditions.

1.3 Tools

1.3.1 The CoPilot Planning Tool

Our most useful piece of aviation planning software is the CoPilot program written by Laurie Davis. This runs on the Palm Pilot (even an ancient one), iPhone and iPod Touch and provides all of the basic calculations needed for navigation. In comparison with the more extensive flight-planning tools, the only major features it lacks are the automatic access of winds aloft forecasts (that has to be done manually) and autorouting (“find me a route along Victor airways from X to Y”). However, in not requiring an Internet connexion, its flexibility is really useful. Once the details of an aircraft’s performance have been entered and stored, the ground work for creating a flight is as easy as entering the departure and destination airports, any points *en route* where the track changes and the altitude of the flight. It has a database of all airports, navigation aids and intersections for the areas chosen by the user so, given the upper wind forecast, it calculates the tracks, headings, distances, times and fuel consumptions for the flight.

CoPilot has many other features (e.g., calculation of weight and balance for take-off and landing, suggestions of intermediate airports on long legs) and its flight planning feature is thorough, simple to use and remarkably accurate—see table 13.1 on page 42.

1.3.2 Onboard Navigation Tools

The main navigation tools we carried were, of course, maps. The primary navigation map was the *En Route* Low Altitude chart LO-7 but the VFR Navigation Charts (VNCs) for Montréal, Chicoutimi and Anticosti were also carried to identify towns and other landmarks. We also had up-to-date approach plates for Québec (CAP 5),

the Atlantic Provinces (CAP 7)¹ and, for the return trip, Ontario (CAP 4). These books are not only useful for flying instrument approaches—I find their runway layout pictures and communications frequencies much easier to read than those in the Canada Flight Supplement. When flying with my (non-pilot) wife, she accesses the information about our destination airport when we are about 30 minutes out and briefs me on the runways, procedures, altitudes, etc.

For radio navigation, our Cessna 172 is equipped with an ADF, an *en route* approved GPS and twin VOR receivers, one with a localiser and glideslope. In addition we carry a hand-held GPS with moving map and an HSI display. This GPS HSI displays track (rather than heading) very accurately, removing the need to calculate wind corrections (wind triangles or E6Bs or equivalent). I do carry a circular slide-rule (a CR-3) on board and know how to use it but it has never been used in earnest.

1.3.3 Other Onboard Tools

Probably the most important non-navigation tool on-board our aircraft is the Insight Strike Finder: a weather avoidance system that detects, analyses and displays the electrical activity emanating from thunderstorms within a 200 nautical mile radius of the aircraft. We had this installed some years ago following a close encounter with a thunderstorm south of Lake Erie when we could only rely on ATC's radar to help us remain safe. Several times during the trip described below it was of inestimable value in shewing precisely where the thunderstorm activity was.

Another essential piece of equipment is a hand-held radio. Keeping one of these (fully charged!) has been of great use to me several times. During this trip it was used a couple of times including during our departure from Mont-Joli—see chapter 11 on page 36.

The final piece of on-board equipment is the simplest: a knee-board strapped to my leg. There are all sorts of complicated knee-boards with lights, fold-out sections for maps, etc. I eschew all of these and use a simple sheet of metal with a simple clip and a simple strap for holding it in place. I start with a blank sheet of paper for each flight and try to put everything associated with the flight on that paper. Figure 1.1 is a copy of the knee-board page used for the trip described in chapter 9. The route is in the top right-hand corner, the weather beneath it down the right-hand side, the engine on, takeoff, landing and engine off times are in the top left with the clearances, frequency changes and ATIS information below it. It might not be neat (I didn't realise it would be published when I wrote it) but it is functional—everything needed for the trip on a single sheet of paper. I decided to create this booklet only after returning from the trip and have reconstructed the details of each flight from the pages I wrote at the time.

¹We never used CAP 7 but, had we not been able to land at Lourdes-de-Blanc-Sablon and had to divert into Newfoundland, it would have been essential.

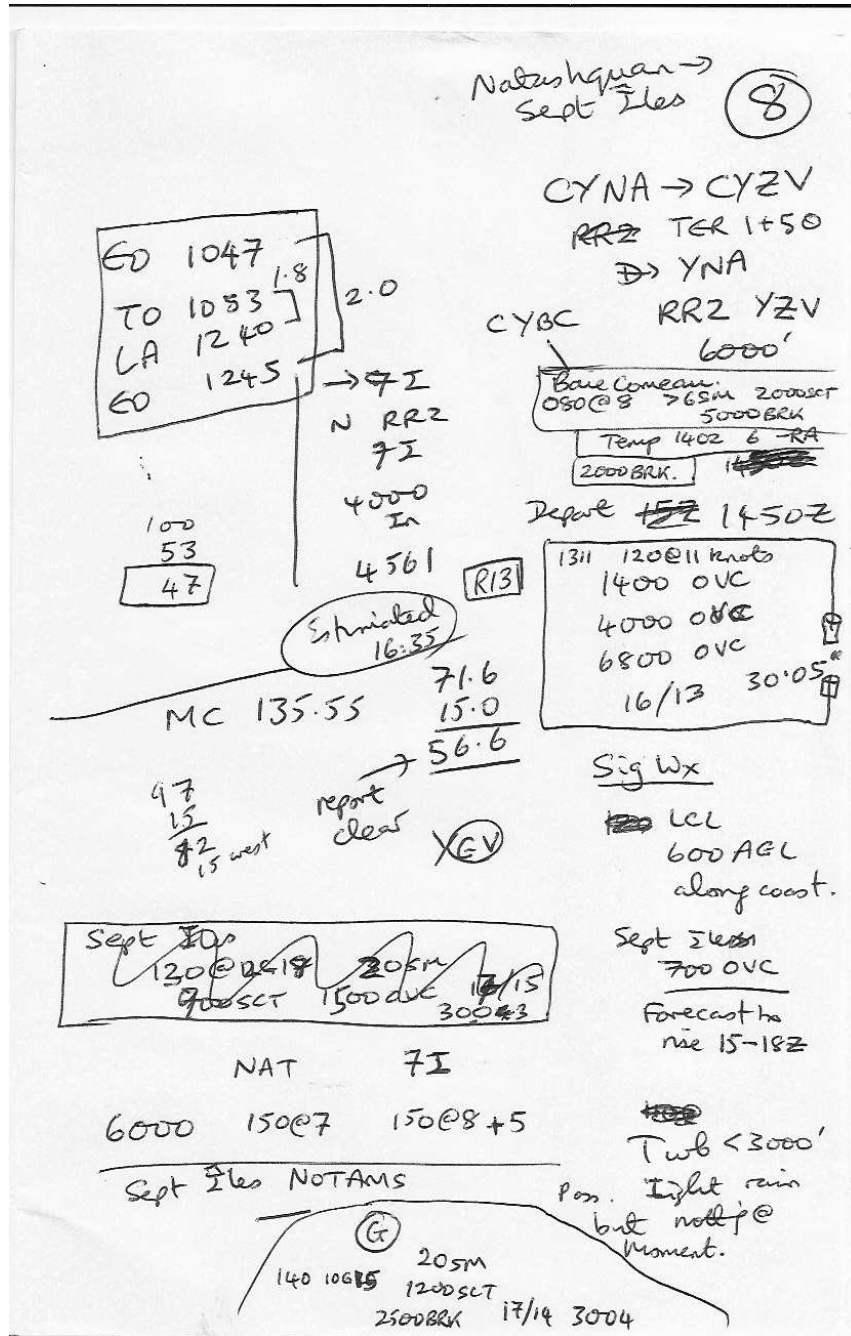


Figure 1.1: My Knee-board Sheet for the flight described in Chapter 9

1.3.4 Other Equipment

As we would be travelling over fairly hostile country, we packed accordingly. We always carry a tent, emergency blankets, waterproof matches, chocks, a first aid kit, whistle, mirror and basic foodstuffs when flying but, for this trip, added mattresses, insect repellent,² additional ropes, several litres of 15W50 engine oil, additional fresh water and cooking materials. We should also have taken a small stove.

Since I have little faith in a standard ELT surviving a crash, we also carried a SPOT Satellite Messenger. This transmits the position of the aircraft when it is travelling (i.e., before any crash) and would make finding us after a crash easy. Our children in the UK and Australia as well as Canadian friends received regular position reports throughout our trip using the SPOT system.

1.4 Methodology

The key element in my route planning is the weather. If possible, I use the Internet to pull up current weather information and forecasts, both from Canadian and US sites. Having examined the reports and forecasts, I ring Flight Services for a weather briefing and list of NOTAMs while the Internet information is still in front of me. This allows me to have a dialogue rather than simply being the recipient of a flow of information. I may ask the briefer how she thinks a particular low pressure is going to move, how fast a frontal system is currently moving, how moist a particular air mass is, etc. When the Internet is not available and I have to rely solely on a telephone call I feel vulnerable.

On vacation, the precise destination and time of departure is unimportant and because the views out of the window are paramount, I always try to fly VFR. If there is significant thunderstorm activity, I again try to fly VFR or IFR above an undercast so that I can see what is building ahead of us. It will be found that, with one small exception, all of the outward flights described below were flown VFR.

A destination having been chosen, I next select a route. If there is a choice of a route around a low pressure area then I take advantage of the winds by selecting the appropriate route. Otherwise, being allergic to drawing lines on maps and measuring angles and distances, where possible, I choose airways. The lines for these are already on the map and the tracks are already measured. Together with the use of CoPilot, this means that the actual route preparation rarely takes more than 5 minutes—the time to type the waypoints into CoPilot. The 10° drift lines so beloved of flight tests are only of use to people without radio navigation aids (GPS, VORs, NDBs, etc.) who can fly a heading to within 1° accurately. I do not belong to that class of pilot (on either count!) and so have never used them except in examinations.

²Actually insufficient insect repellent—we should have taken several litres!

Fuel planning is really just performing a sanity check on CoPilot's output:

Looking at the map, the distance appears to be about 250 miles. CoPilot says it's 232.6 so that seems to be sensible. We fly with an airspeed of about 100 knots so the trip should take just under two and a half hours. CoPilot says 2 hours 27 minutes so that seems to be a reasonable estimate. I have 5 hours of fuel aboard (carefully checked during the walk-around) so that is adequate.

For most trips that is the end of fuel planning. Of course, if I am departing with less than full tanks (perhaps because of having four adults on board), then I do a much more careful calculation.

Chapter 2

Ottawa Rockcliffe → Trois-Rivières

2.1 Summary

Flight Rules	Visual
Date	4th August 2008
Departure	CYRO
Destination	CYRQ
Alternate	Not applicable
Route	YMX
Distance	135.0 nm
CoPilot Time Estimation	1 hour 26 mins
Actual Time	1 hour 11 mins

2.2 Planning

When leaving on a trip, my wife and I like to make a “Hudson’s Bay start”. The story goes that expeditions leaving the Hudson’s Bay outposts would, on the first night, camp within a short distance of the departure point. This allowed any missing necessities to be discovered while it was still possible to return and procure them. Similarly, a single flight of just over an hour on the first day makes it possible to discover the maps left on the kitchen table (not this trip!) while still close enough for retrieval.

The choice was really Montréal, Québec City or one of the airports between. Montréal was a bit too close and we assumed that, with its birthday celebrations, accommodation might be hard to find in Québec City and so we selected Trois-Rivières. We had visited Trois-Rivières before and knew that there would be activity (and a

restaurant) on the field. The only issue with the airport is that it is a strange hybrid—it has a Mandatory Frequency but only a Unicom (rather than *Radio*). This means that straight-in and “enter on base” approaches are permitted but there may be no operator available to translate between French and English. On a previous occasion we had had trouble when approaching from the east while another aircraft, broadcasting only in French, was performing a straight-in approach to the same runway. Frankly, even with a French-speaking wife onboard, I find a mixture of untranslated French and English calls dangerous and it was certainly something I thought about as we approached.

Having decided to go to Trois-Rivières, selection of a route was easy—the great circle from Rockcliffe to Trois-Rivières passes more-or-less over the Mirabel VOR (YMX) and it would be possible to intercept V360 after leaving Rockcliffe and fly directly to YMX. This would also take us well north of the Montréal airspace.

2.3 Flying

Until the last few minutes, the flight was uneventful.

We climbed to 3500 feet out of Rockcliffe and, using the Ottawa VOR (YOW), intercepted V360 and flew east, using the GPS to find a heading that gave a track of 081°. *En route* to YMX we switched to that VOR and, having passed over it, we gave a position report to Québec Radio. The format of a VFR position report is listed on the back of the Canada Flight Supplement (CFS) and, using the GPS, I was able to report:

*Foxtrot, Papa, Tango, November. 45 degrees 58 minutes North, 74 degrees
9 minutes West at 16:46 Zulu, 3500 feet, VFR, CYRQ*

Using a latitude and longitude like this is more accurate than saying something like *20 miles east of YMX on V360* but gives Flight Services extra work to find the closest airport with an altimeter setting. I therefore sometimes end the report with something like “*request Mirabel altimeter*”.

On the principle of having as many navigation devices as possible to cross-check, we tuned the ADF to the St-Felix-de-Valois NDB. Once past that NDB, we tuned the ADF to the NDB at Trois-Rivières.

As we approached Trois-Rivières it was clear that the visibility and ceiling were decreasing and we would be flying through quite heavy rain. Runway 05 (right-hand circuits) was in use and, with the visibility deteriorating quickly, we decided to use the runway centreline depicted on the GPS to help us line up for a straight-in approach (permitted at a Mandatory Frequency airport). The ADF helped here too as the NDB is off the departure end of runway 05 and, as expected, the runway appeared out of the rain straight ahead. We were legally VFR at all times but, in retrospect, it might have been better to overfly the airport to join the right downwind for runway 05.



Figure 2.1: Heading Eastwards from Rockcliffe—the Ottawa River

Chapter 3

Trois-Rivières → Forestville

3.1 Summary

Flight Rules	Instrument/Visual
Date	5th August 2008
Departure	CYRQ
IFR Destination	CYBC
Alternate	CYYY
Actual Destination	CYFE
Route	YQB
Distance	207.7 nm
CoPilot Time Estimation	2 hours 27 mins
Actual Time	2 hours 24 mins

3.2 Planning

This was a strange flight to plan. We had decided to fly to Forestville but the area from Trois-Rivières to just east of Québec City had low cloud (Québec City was reporting 1100 feet broken). Beyond Québec City a ridge of high pressure was the dominant weather-maker and Baie-Comeau was reporting a clear sky, its forecast predicting no worse than 3000 feet broken all day. Mont-Joli, on the south shore of the St Lawrence, was also under the influence of the ridge and its forecast predicted only scattered cloud at 3000 feet.

We decided to file IFR to get out of Trois-Rivières with the intention of cancelling it and filing a VFR flight plan from the air once we were in VFR conditions. It is, of course, possible to file a composite IFR and then VFR flight plan but I have never known anyone do so and we couldn't be sure at what point we would be in VFR



Figure 3.1: Trois-Rivière

conditions. Forestville does not have an instrument approach. This would not have prevented its use as an IFR destination but we thought it simpler to file an IFR flight plan to Baie-Comeau with an alternate of Mont-Joli, putting our intention to cancel this flight plan and file VFR to Forestville if conditions became suitable in the remarks section.

There was one significant NOTAM for Forestville—the runway was to be closed for 3 days later in the week for drag racing!

We particularly didn't want to land at Baie-Comeau. On a previous trip we had not only been charged a landing fee there but also a fee for using the terminal facilities (i.e., the washrooms). I confirmed that, had we arrived in a car and walked into the front door to use the washrooms we would not have been charged. But since we arrived in an aircraft we would! I found this unacceptable and have avoided Baie-Comeau ever since. The other snag with arriving at this airport for lunch is that it is 18 km by road from the town whereas Forestville is “adjacent”.

This was to be an IFR flight and so I did additional checks during the walk-around: checking that the pitot heater was working and that the alternate static port was clear.¹

¹I check alternate static during the walk-around by turning it off and slamming the cabin door. The vertical speed indicator should not move. I then turn alternate static on and slam the door again. The vertical speed indicator should move.

Looking at the departure procedures for Trois-Rivières, I noted that I was not allowed to fly to the north of the runway before reaching 1900 feet and I spoke with a local flight instructor to ask how I could get my IFR clearance on the ground. He said that Montréal Centre could be reached using their remote communications outlet (RCO) on 128.22 MHz.

3.3 Flying

We used the RCO to get our IFR clearance:

Papa Tango November is cleared to the Baie-Comeau airport via Trois-Rivière, Québec, V360, YBC, to maintain 6000 feet, squawk 5247, clearance valid until 1430 Zulu

The clearance valid time is always given at an uncontrolled airport if there is no Flight Service representative on the field. It meant that we had to be in the air by 14:30 Zulu or our clearance was cancelled. You will note that the altitude given (6000 feet) is inappropriate for an eastbound flight. We had filed for 7000 feet and were assigned to that altitude shortly after takeoff.

As we took off from runway 05 we saw the large tower (1660 feet) to the north west that had presumably lead to the departure procedure specifying not flying to the north of the centreline until reaching 1900 feet. We entered thin cloud which began to break up as we approached Charlevoix after about an hour's flying. Soon we were in clear skies and informed Montréal Centre that we intended to file a VFR flight plan from the air and proceed to Forestville.

We were unable to contact Flight Services (Québec Radio) on 126.7 MHz to file our new flight plan and so I spoke with Mont-Joli Radio to see whether they could relay it to Québec Radio for us. Mont-Joli gave us a different frequency for Québec Radio and this allowed us to file the VFR flight plan.

Navigation to Forestville was simple: as with most of the remainder of the outward trip, it was simply a matter of following the north shore of the St Lawrence river. To help matters further, Forestville has an NDB very close to the field. As can be seen from figure 3.2, the threshold for runway 09 is significantly displaced.

Our major problem occurred after landing. We taxied in and found the airport buildings and gates firmly locked. After some help from a local outside the fence, we found a telephone that we could use to summon refuelling assistance and to help us get into the small terminal building that seems to double as a motor insurance office for part of the day.



Figure 3.2: Forestville

Chapter 4

Forestville → Sept-Îles

4.1 Summary

Flight Rules	Visual
Date	5th August 2008
Departure	CYFE
Destination	CYZV
Alternate	Not applicable
Route	YBC, shoreline, YZV
Distance	142.0 nm
CoPilot Time Estimation	1 hour 39 mins
Actual Time	1 hour 40 mins

4.2 Planning

Forestville was one of those awkward places where we could not get an Internet connexion. I therefore had to rely completely on telephone calls from a public telephone¹ to Flight Services to get weather briefings and NOTAMs. The first call I made was discouraging: there were “significant” thunderstorms north of Baie-Comeau moving towards the airport. The radar apparently indicated that these would have passed through in a couple of hours.

When I rang back a couple of hours later, the picture was much better: a few isolated Towering Cumuli north of Baie-Comeau but the sky was now clear over that airport. In particular there were no more cumulonimbus clouds on the radar. Our destination, Sept-Îles, was reporting winds at 140° at 9 knots with a broken layer of clouds at 5000

¹There was no Rogers cell’ phone coverage either.

feet and recent thunderstorms. The Sept-Îles forecast for the time of our arrival was calling for a 7000 foot broken ceiling and a 30% probability of thunderstorms.² It is important to remember that weather reports (METARs) and forecasts (TAFs) cover only the area immediately around the airport, this is why it is important to get the larger picture from the surface analysis and radar.³

We filed a VFR flightplan, effectively along the northern shore of the St Lawrence river from Forestville, over the Baie-Comeau VOR and then along the shoreline to Sept-Îles. Since there were no waypoints in the CoPilot database on the shoreline between Baie-Comeau and Sept-Îles, we had to add *Pointe-aux-Anglais* as a user waypoint and route via it. As it happened, following the shoreline was fortunate because the direct route would have taken us through a thunderstorm.

4.3 Flying

Once we had again managed to break into the airport, we filed a flight plan and took off, being immediately followed by a police helicopter.⁴ The flight was uneventful apart from having to fly a little south of planned track to dodge an isolated Towering Cumulus with associated heavy rain. The storm was displayed on the Strike Finder but was also clearly visible outside the window.

As we approached Sept-Îles we listened to the ATIS and found that winds were calm, visibility was 20 miles and there were a few clouds at 5000 feet.

Tuning to Sept-Îles Radio we found that the preferred runway was 09 and that a Piper Navajo was also inbound from the west but that we would arrive first.

We decided to use runway 09 and set ourselves up for a straight-in approach. For practice, although we were in perfect VFR conditions, I flew the ILS/DME for 09 without looking up (my wife looking for other traffic) until we reached 200 feet above ground level. Luckily the runway was then directly ahead! The final few miles of the approach were over the water and I would have felt a little more comfortable had we both donned our life-jackets before taking-off. There is often discussion in the various flying magazines as to whether a single-engined aircraft like a Cessna 172 could maintain a standard 3° glideslope if the engine were to fail completely. The general conclusion seems to be that it couldn't.

²The inclusion of a 30% chance of thunderstorms seems to be a standard for most of my destinations during the summer months. The forecasters should perhaps read the story of the boy who cried “wolf” too often.

³I find the GFAs almost impossible to use because the boundaries are so artificial (e.g., no weather ever happens across the USA border). It should not be beyond today's technology for Environment Canada to provide a customised GFA centred on any latitude and longitude in Canada.

⁴It was not chasing us, its departure was coincidental.



Figure 4.1: Runway 09 at Sept-Îles

Chapter 5

Sept-Îles → Natashquan

5.1 Summary

Flight Rules	Visual
Date	6th August 2008
Departure	CYZV
Destination	CYNA
Alternate	Not applicable
Route	YZV RR2 YNA
Distance	171.9 nm
CoPilot Time Estimation	2 hours 2 mins
Actual Time	2 hours 11 mins

5.2 Planning

We toyed briefly with the idea of stopping at Havre St-Pierre for lunch but its entry in the Canada Flight Supplement (CFS) seemed almost hostile to aircraft so we decided to fly directly to Natashquan, an airport that we had visited eight years previously and from which we knew that we could walk into the village to eat.

Internet access was available in the Trans-Sol Aviation FBO¹ at Sept-Îles and both my analysis of the weather and that given by the Flight Service representative were positive—we might meet a few clouds when we got close to Natashquan but they would be plenty high enough for a VFR landing.

¹Fixed Base Operators are to be found at all of the larger airports, normally associated with a particular fuel company (Shell, Esso, etc.). They typically provide fuel, overnight tie-downs, help with finding hotels and a pilots' lounge with flight planning tools.

5.3 Flying

Sept-Îles has a VOR test facility (VOT) available and we took the opportunity before departure to check the accuracy of our VOR receiver—it was absolutely accurate.

The Sept-Îles ATIS was reporting winds from 170° at 4 knots, 30 miles visibility, a few clouds at 2000 feet and an altimeter setting of 29.98". We took off from runway 09 and climbed onto RR2, the route that effectively follows the north shore of the St Lawrence to Natashquan and beyond.

It was somewhat disappointing to find we had a 20 knot headwind and were only grounding about 83 knots. Flying east I expect a tailwind. I pessimistically assumed that as we flew westwards on our return we would also have head winds but, in fact, winds were easterly for the whole trip.

The north shore east of Sept-Îles is governed by a so-called “corridor frequency” of 123.5 MHz—details are given in the *Québec Planning* section of the CFS. Once we had left the Sept-Îles zone we monitored both this and 121.5 MHz, the emergency frequency.

At the mouth of the Rivière-au-Tonnerre we spotted an aerodrome that wasn't marked on any of our maps. We added it to the VNC map in case we needed it on our return trip.

As we passed over Havre St-Pierre we relayed our position, altitude, direction of flight (along RR2) and revised arrival time (17:00Z) both on the corridor frequency and to Sept-Îles Radio on their local frequency—effectively giving a position report. Sept-Îles radio has remote communications outlets at all of the larger airports along the north shore as far as Lourdes-de-Blanc-Sablon.

We spotted Natashquan airport from 40 miles out and, as we approached, we listened to the Automatic Weather Observation Station (AWOS)—an unattended weather station broadcasting measuring and broadcasting conditions every minute or so. To some extent this is better than an hourly ATIS because it is more up-to-date but the automatic system sometimes seems to find clouds that aren't actually there. I have even seen CFS entries requesting helicopter pilots not to fly over an AWOS to avoid confusing it.

We contacted Sept-Îles Radio again when 15 miles west of Natashquan and flew a straight-in approach for runway 14.



Figure 5.1: The VOR at Natashquan

Chapter 6

Natashquan → St Augustin

6.1 Summary

Flight Rules	Visual
Date	6th August 2008
Departure	CYNA
Destination	CYIF
Alternate	Not applicable
Route	RR2
Distance	142.7 nm
CoPilot Time Estimation	1 hour 50 mins
Actual Time	1 hour 50 mins

6.2 Planning

The direct route from Natashquan to St Augustin goes inland, away from the shoreline, across some very hostile terrain. Even along the shoreline there is no longer a road to use in an emergency—the only road in this area, the 138, stops abruptly 3 or 4 km east of Natashquan. We therefore decided to continue to follow the RR2 air route which at least passes over, or close to, a number of airports: Kégaska,¹ La Romaine, Chevery, Tête-à-la-Baleine and La Tabatière. Some of these have gravel runways but all would be acceptable in an emergency. There were also villages along the shoreline.

Again there was no opportunity to access the Internet at Natashquan and we were completely reliant on the Flight Services briefer. The only negative points on the briefing were the slight possibility of fog and mist near St Augustin and the NOTAM

¹Spelled “Kégashka” on the VNC.

that the VASIS (the coloured lights giving glideslope information) were out-of-order. Knowing that we could, if necessary, continue for the extra 45 minutes to Lourdes-de-Blanc-Sablon if the mist prevented us getting in at St Augustin, we were comfortable filing a VFR flightplan.

6.3 Flying

Until we reached the ground at St Augustin, this was an uneventful flight in clear weather over some of the most wonderful scenery we have ever encountered.

We had read in the CFS that a river lies between the airport and the town and had rung a guest house that promised to “send a boat” for us if we telephoned after landing. We circled once over the town to alert the people concerned and then landed. Unfortunately we found that the only telephone was behind a locked door in the terminal building. We could see it but couldn’t reach it. It appears that we were not the only people to have been frustrated by this since there were signs that someone had unsuccessfully tried to force the lock on the door at some earlier time.

I contacted Québec Radio with my handheld radio using the Remote Communications Outlet (RCO) on the field and asked whether they would ring the number of the guest house for us. They very graciously did so, only to find the number engaged.

By this time we were being devoured by blackflies, sunset was not too far away (because of my colour-blindness I’m not allowed to fly at night) and we could not be confident that anyone knew we were waiting for the boat. We decided to fly on to Lourdes-de-Blanc-Sablon.

The official closing time of the airport at Lourdes-de-Blanc-Sablon given in the Canada Flight Supplement was 22:00Z and we would be arriving later than that, again possibly finding the airport locked. On balance, we felt that we would rather be locked in an airport in Lourdes-de-Blanc-Sablon than in St Augustin.

On the subject of times, it may be worth noting that, although the CFS says that St Augustin is in a different timezone from Québec City, it actually isn’t. And nor, we found was Lourdes-de-Blanc-Sablon. This meant that darkness arrives very early in local time. In fact the clocks in Lourdes-de-Blanc-Sablon and Thunder Bay tell the same time although it takes the sun 2 hours 8 minutes to get from one to the other!

Chapter 7

St Augustin → Lourdes-de-Blanc-Sablon

7.1 Summary

Flight Rules	Visual
Date	6th August 2008
Departure	CYIF
Destination	CYBX
Alternate	Not applicable
Route	Direct
Distance	56.9 nm
CoPilot Time Estimation	45 mins
Actual Time	43 mins

7.2 Planning

If you have read about the previous flight (chapter 6) you will know that this flight was planned quickly and under duress from blackflies. There is a dangerous temptation to spend less time planning short flights (this was to be about 45 minutes) on the grounds that “what can possibly go wrong in 45 minutes?” This must be resisted.

However, in this case we had landed only 30 minutes earlier and had seen the state of the weather along the shoreline and felt confident that we would meet nothing worse than some reasonably high overcast as we approached Lourdes-de-Blanc-Sablon.

Using the Remote Communications Outlet (RCO) for Québec Radio, we got the latest weather at our destination—winds from 110° at 10 knots, gusting 15, altimeter



Figure 7.1: The (Unlocked!) Terminal at Lourdes-de-Blanc-Sablon

29.93”—filed a VFR flightplan and departed, feeling guilty about the person expecting a call from us to send a boat across.

7.3 Flying

As expected, the flight was uneventful from the point of view of the weather—clear skies until close to our destination where, as can be seen in figure 7.1, there was a high overcast. The views were magnificent with long shadows from the setting sun.

Soon after takeoff we picked up the Limited Weather Information Service (LWIS) at Lourdes-de-Blanc-Sablon. This is similar to an AWOS but only gives winds and altimeter setting—no cloud heights.

We spoke with Sept-Îles Radio 15 miles west of Lourdes-de-Blanc-Sablon and landed straight-in on runway 05. On approach my passenger was enthusing about the scenery, particularly the rocky hills around us, but I was concentrating on the gusting cross-wind from our right.

As we taxied in our spirits drooped since there seemed to be no sign of life. Having parked, we walked to the terminal building and pushed on the door. It opened! Walking through the building I saw that the Air Labrador desk was still open and a human being was sitting behind it waiting for the incoming flight. What a relief!

Chapter 8

Lourdes-de-Blanc-Sablon → Natashquan

8.1 Summary

Flight Rules	Instrument
Date	9th August 2008
Departure	CYBX
Destination	CYNA
Alternate	CYGV
Route	BX, RR2, YNA
Distance	198.8 nm
CoPilot Time Estimation	2 hours 12 mins
Actual Time	2 hours 8 mins

8.2 Planning

I found the Québec Radio Flight Services briefer to be quite apologetic about Lourdes-de-Blanc-Sablon weather. Outside the terminal door the wind was blowing cold rain across the airport and it was clearly going to be an IFR departure but the briefer really couldn't explain what the big weather-maker was—there was no particularly active weather system, just a trough of low pressure along the Québec/Labrador border right over the top of Lourdes-de-Blanc-Sablon.

Looking at the satellite picture, the briefer said that conditions would be IFR to “somewhere between St Augustin and Chevery”. The Graphical Area Forecast was calling for isolated towering cumuli along the route but no mention of cumulonimbi.



Figure 8.1: The Journey Home

The latest weather report from Lourdes-de-Blan-Sablon gave the current winds as 21 knots, gusting 26, from 100°, the altimeter setting as 29.95” and the clouds as 600 feet broken, 1200 feet overcast. It was clearly possible to take off from runway 05 but the decision that had to be made was whether it was sensible to do so. If the engine coughed at 1000 feet, would it be possible to return and land? On our drive to the airport we had seen the NDB antenna just off the approach end of runway 05 (it’s actually only 1 nm from touchdown) and knew that, if necessary a 506 foot ceiling was adequate to get back in again and so I made the decision to go.

Another factor to be considered was the required climb gradient off runway 05: 230 feet per nautical mile up to 800 feet to avoid the hills. This translates to 268 feet per minute at 70 knots and I was comfortable with that in a relatively lightly-loaded Cessna 172. We therefore filed an IFR flightplan, again planning to follow the shoreline along air route RR2, initially at 4000 feet, climbing to 6000 feet at Chevery. The reason for the two altitudes was a concern about icing in the first part of the flight at 6000 feet. In fact, I need not have worried because, although the surface temperature was only 9°C, the temperature at 4000 feet was still 8°C.

Doing the walk-around in the cold, driven rain was miserable¹ and it is, of course, always tempting to abbreviate it in those conditions. I forced myself to complete all the checks, including pitot heat, while my wife was loading our bags and putting the rear seat belts around them.

We donned our life-jackets before boarding as the first part of the flight was to be over water.

8.3 Flying

I had to give a few moments thought to our transponder code before takeoff. What was the transponder code for IFR flight in low-level airspace? In the end, remembering my groundschool, I selected 1000 rather than the 1200 used for VFR flight.

As it happened, the ceiling was slightly higher than expected and we didn’t enter cloud until about 1000 feet—returning, if necessary, would have been quite practical. Since this entire flight was to be in uncontrolled airspace, I received no clearance from ATC² but spoke with Sept-Îles Radio on their RCO at Lourdes-de-Blanc-Sablon. This ensured that any incoming IFR traffic would be aware of our existence. Once at altitude we tuned to the corridor frequency to inform other aircraft of where we were and listen to their position reports. Even with the corridor frequency, being used to flying IFR in controlled airspace, I felt somewhat exposed.

¹Although it would have been worse in a low-wing aircraft.

²ATC is not allowed to give clearances or instructions to aircraft in uncontrolled airspace.

15 miles west of Lourdes-de-Blanc-Sablon we said goodbye to Sept-Îles Radio and settled down for a couple of hours of smooth flying towards better weather. It was a pity that we couldn't see the amazing scenery that we were flying over but my wife and I were both remembering what we'd seen on the outward journey.

We turned the slight corner in RR2 over the St Augustin NDB, reporting our position as required on the corridor frequency, and reported to Sept-Îles again as we passed over the Chevery NDB.

As we approached Natashquan we listened to the AWOS that was reporting winds from 180° at 11 knots with greater than 9 miles visibility and clouds at 1600 feet scattered and 8000 feet broken.

15 miles east of Natashquan it was time to contact Sept-Îles Radio again³ and since the clouds had broken up, I decided to do a contact approach to runway 14—an IFR approach flown with reference to the ground rather than to instruments. This differs from a visual approach in that the pilot doesn't need to have the runway in sight to request a contact approach and the approach is still strictly carried out under Instrument Flight Rules.

While looking down in the cockpit to sort out my runway layout for Natashquan, my wife reported that we had had a very close encounter with a large sea bird. I did not see it at all but this could clearly have been a major incident had we hit it.

We landed and found everything locked up. We had forgotten that this was quite likely on a Saturday. At least, unlike St Augustin, the telephone was accessible and we called for help.

Before it arrived, I tried to open the airport gate. Normally the codes on airport gate locks are the local radio frequencies, presumably since pilots who need to get in and out would know these and burglars would not. I tried the local RCO frequency, the AWOS frequency and all the other local frequencies to no avail. I then found that the piece of credit-card-sized plastic with telephone numbers and runway layouts that the receptionist at the Trans-Sol Aviation FBO in Sept-Îles had given me was suitable for opening the lock and we broke out just as help arrived.

³I think the flight service people in both Sept-Îles and Québec City got to know us on this trip. At one time, when I was filing a flight plan, the briefer said that she had been following our trip up the north shore with interest!

Chapter 9

Natashquan → Sept-Îles

9.1 Summary

Flight Rules	Instrument
Date	10th August 2008
Departure	CYNA
Destination	CYZV
Alternate	CYBC
Route	YNA, RR2, YZV
Distance	172.0 nm
CoPilot Time Estimation	1 hour 44 mins
Actual Time	1 hour 47 mins

9.2 Planning

We selected Sept-Îles as a destination because we knew that, even on a Sunday, we would be able to get lunch in the restaurant on the field. The obvious route was along the air route we were getting to know well: RR2. The difference this time would be that the final section of the journey would be in controlled airspace. I had expected headwinds all the way home and the good news from the weather briefing¹ was that the low pressure to the south of our route was still dominating, giving a slight but noticeable tailwind. The 6000 feet winds aloft forecast was for 150° at 7 knots at Natashquan and effectively the same for Sept-Îles. The only significant weather was local patches of 600 feet AGL ceilings along the shoreline and the weather at Sept-Îles—700 feet overcast

¹When I finally got through—I was number 10 in line for speaking with a briefer on two occasions while praring this flight.

but forecast to rise before we arrived. Some mild turbulence below 3000 feet was also forecast along the route in light rain.

Our main challenge was to find an airport that was forecasting weather sufficiently good to act as an alternate. After some discussion with the briefer I chose Baie-Comeau—its forecast was for 2000 feet scattered cloud at the time we would arrive.

We filed an IFR flightplan and clambered aboard the aircraft.

9.3 Flying

Because we were going to be entering controlled airspace on this trip, we needed a clearance and received this on the ground, relayed from Sept-Îles Radio:

ATC clears Papa Tango November to the Sept-Îles airport via Natashquan, RR2, Sept-Îles, enter controlled airspace at 4000 feet or below, squawk 4561.

We took off into a 1400 feet overcast with the intention of climbing to 6000 feet. We broke out of cloud at about 2500 feet with a beautiful, creamy, stratus undercast and no clouds above. Sept-Îles Radio, however, informed us that there were two IFR aircraft flying RR2 eastbound, somewhere between Havre St-Pierre and Natashquan, one at 5000 feet and one at 7000 feet. We therefore decided to remain at 4000 feet, at least until we were sure they were behind us. In fact, we found 4000 feet to be comfortable with none of the predicted light turbulence so we remained there for the whole trip.

15 miles west of Natashquan we reported to Sept-Îles Radio and, on the corridor frequency, heard the first of the two eastbound aircraft reporting overhead the Natashquan VOR—well behind us. The second aircraft passed over it about 5 minutes later.

Before entering controlled airspace, we listened to the ATIS from Sept-Îles which reported winds from 140° at 10 knots, gusting 15, and scattered clouds at 1200 feet, broken clouds at 2500 feet. The winds clearly favoured runway 13 and I opened the Canada Air Pilot at the page for the VOR approach to runway 13.

We contacted Montréal Centre while about 5 miles outside the controlled airspace, told them we had ATIS GOLF and were intending to do the VOR approach to runway 13. We heard an IFR aircraft arriving from the west and the pilot, realising that we couldn't begin our approach while he was flying IFR, cancelled IFR as he broke out of cloud some miles west of Sept-Îles. We were then cleared for the approach and told to switch to Sept-Îles Radio.

It was here that I really got behind the aircraft (something that is difficult to do in a Cessna 172!)—I was preparing for the instrument approach but, with cloud bases at 2500 feet and inbound aircraft cancelling IFR while quite a long way out, I was tactitly assuming that we would break out of cloud as we descended and not have to fly the

whole approach. I was really thinking about two approaches simultaneously and not really concentrating on either. As we passed over the VOR at the required height of 2600 feet we were still in cloud and experiencing some mild turbulence. The Flight Service specialist was clearly expecting us to cancel IFR and queried whether we were going to do the full approach. I responded that we were still in cloud and would have to do the full approach. By that time I had wandered off the 286° radial and was in the process of making a mess of a really simple approach. I descended, as permitted, to 2000 feet and, once we were a few miles west of the airport, we suddenly broke out of cloud. With a sigh of relief that I would not have to salvage the approach from my own stupidity, we cancelled IFR and made a VFR approach into Sept-Îles, landing on runway 13 and taxiing its entire length (5771 feet) and then the entire length of runway 27 (6552 feet) to reach the FBO. A taxiway along the disused runway would really be nice.

Chapter 10

Sept-Îles → Mont-Joli

10.1 Summary

Flight Rules	Instrument
Date	10th August 2008
Departure	CYZV
Destination	CYYY
Alternate	CYBC
Route	YZV, V360, YBC, V39, YYY
Distance	131.7 nm
CoPilot Time Estimation	1 hour 32 mins
Actual Time	1 hour 29 mins

10.2 Planning

We decided to switch to the south shore of the St Lawrence (a lucky decision given the convective activity over the north shore when we left Mont-Joli two days later) and spend some time in Ste. Flavie, walking distance down the hill from Mont-Joli airport. To minimise the time spent flying over water, we planned to follow the north shore to Baie-Comeau and cross over the 30 miles or so of water at that point. The direct route, V98, would have kept us over water for almost the whole trip.

This trip emphasised the importance of examining NOTAMs¹ carefully. The NOTAMs for Mont-Joli stated not only that taxiways C, D and E were closed but that one of the approaches for runway 24 was not authorised.²

¹Notices to air-persons!

²The Flight Services briefer also mentioned a strange NOTAM from Baie-Comeau saying that its VASIS lights were permanently set at high intensity. I promised that, if we had to divert to Baie-

The weather briefing said that the major weather-maker was a large low pressure area around Toronto moving slowly eastwards and expanding as far as the Québec North Shore. There was the possibility of isolated thunderstorms on our route of flight but ceilings at Mont-Joli were steady at 3500 feet and, further west, Charlevoix was reporting only scattered cloud at 3000 feet. Because of the ceiling at Sept-Îles and our wish to cross the 30 miles of river reasonably high, we decided to file IFR, but this trip could probably have been made VFR without any issues.

10.3 Flying

Since we would be out of gliding distance from land for a some minutes, we both donned our life jackets before climbing aboard.

We listened to the Sept-Îles ATIS and found that it was reporting winds from 150° magnetic at 10 knots, gusting 16, with the ceiling at 1700 feet broken. This obviously favoured runway 13 but the thought of taxiing 6652 feet along taxiways B and C and then backtracking 5771 feet of runway 13 was daunting so we decided to use runway 09 and accept the cross-wind. I repeat that it would be really useful if Sept-Îles converted its disused runway into a taxiway for runway 13.

Sept-Îles Radio then relayed our IFR clearance from Montréal Centre:

ATC clears Papa Tango November to the Mont-Joli airport via Sept-Îles, V360, Baie-Comeau, V39, Mont-Joli to maintain 6000 and squawk 4512.

The flight itself was uneventful. There was a small break in the clouds over Baie-Comeau that allowed us to determine the surface wind direction from some factory smoke.

Shortly after setting off across the river we were given the latest Mont-Joli weather (it has no ATIS), were cleared out of controlled airspace for an approach at Mont-Joli and were told to contact Mont-Joli Radio. The Radio operator informed us that there was a large collection of birds on runway 06 but all beyond taxiway E.

From 15 miles out it was clear that we were going to be able to drop through the hole in the clouds over the St Lawrence river (large rivers are often clear of cloud in the afternoons because the air is flowing to the shores and rising over the warmer land) and do a contact approach at Mont-Joli. This we did, landing on runway 06. Even though conditions were perfect VFR by this time, the runway lights and sequenced flashing lights (the “rabbit”) had been switched on for us.

Comeau, I would wear sun-glasses.



Figure 10.1: Beautiful Broken Undercast Near Baie-Comeau

Chapter 11

Mont-Joli → Trois-Rivières

11.1 Summary

Flight Rules	Instrument
Date	12th August 2008
Departure	CYYY
Destination	CYRQ
Alternate	CYQB
Route	YYY, V98, YQB, V360, PESAC, YRQ
Distance	232.6 nm
CoPilot Time Estimation	2 hour 37 mins
Actual Time	2 hours 20 mins

11.2 Planning

It was clear in the planning stage that this leg would have to be flown IFR. There were two areas of low pressure affecting this portion of the St Lawrence: one over Wabush, Labrador and one south east of Nova Scotia (the low that was reported over Toronto on our previous flight). The trough of low pressure lay between them across our route of flight and airports along this part of the St Lawrence were generally reporting ceilings of below 1000 feet. No thunderstorms were forecast until late afternoon but these were expected in the Montréal area at that time. Looking at the satellite picture, the Flight Services briefer reported that there was “a hole in the clouds over Trois-Rivières at the moment” but this was not expected to persist.

Of primary interest, of course, was whether the winds aloft would be dominated by the low pressure over Wabush (in which case they would be from the north west giving us a head wind) or the one over Nova Scotia, in which case we would get a tail wind.

The winds aloft forecast (FD) predicted the tail wind for at least the first part of the flight and this proved to be true.

We discussed whether to try for Québec City or Trois-Rivières and, in the end, decided on the latter. This proved to be a lucky decision later in the day.

Having chosen the destination, the next question was the route. Having spent the previous flight wearing life jackets, we were keen to avoid that this time and so we decided to plan to fly along the south shore of the St Lawrence and cross over near Québec City. The other issue was routing for the approach at Trois-Rivières—the only initial approach fix being the YRQ NDB and the only route to that NDB being from the west. We certainly didn't want to fly past Trois-Rivières in order to fly back again for the approach so we decided to see whether we would be allowed to fly directly from the PESAC intersection on V360 to YRQ. In the event, that was allowed by ATC. The route therefore became *YYY V98 YQB V360 PESAC direct YRQ* and I made one mistake—I filed for an altitude of 4000 feet whereas there is one portion of the flight, from FLEUR to YQB that requires at least 4400 feet.

11.3 Flying

We were delayed in getting our clearance at Mont-Joli as there was an incoming IFR aircraft and only one IFR aircraft is allowed at an uncontrolled airport at a time. The incoming aircraft attempted an approach to runway 24 as we sat for 15 minutes with the engine turning but it didn't break out of cloud (meaning that the ceiling was lower than 424 feet). The pilot decided to try the approach on runway 06 where the visibility and ceiling were slightly better and only a 338 foot ceiling was required. Knowing that this would take some time we switched our engine off after turning to face the approach path to 06 and followed the events on our hand-held radio. We were a little concerned that a bank of fog approaching the airport from the south east could reduce visibility below the half mile required for an IFR takeoff. In the event, it stayed well clear.

Again the decision had to be made about taking off from an airport where, if there were a sudden engine problem, it might not be possible to land back on the runway. We saw the incoming twin break out of cloud at about 400 to 500 feet above ground and this seemed to be high enough for us to get back if necessary. Once the incoming aircraft was off the runway we repeated our checklists, restarted our engine and had our clearance relayed by Mont-Joli Radio:

ATC clears PTN to the Trois-Rivières airport via Mont-Joli, V98, Québec, V360, PESAC, direct Trois-Rivières, maintain 6000, runway 06, squawk 5263

Until the “maintain 6000” it was unclear why they had not just said “flight-planned route” but then I realised my mistake with the minimum *en route* altitude.

We took off on runway 06, entered cloud at about 400 feet and then broke out again between layers in the climb. We contacted Montréal Centre and were told to “report level at 6000”.¹ After we reached cruising altitude we were told to report overhead Rivière-du-Loup, still about 45 minutes ahead of us, and we settled down for a pleasant flight over a more-or-less solid undercast but with holes in the cloud to our right over the St Lawrence river. One issue with flying above an undercast, particularly between cloud layers, is the natural inclination (!) to think of the clouds as the horizon. Since they are rarely level, this causes the aircraft to bank slowly.

Now, holds are something that are practised a great deal during IFR training but rarely occur in practice. Suddenly we were asked how far we were from Mont-Joli and reported 15 miles. We were then given a holding clearance!

*Papa Tango November, clearance limit is now 20 miles west of Mont-Joli.
Hold on V98 at 6000 feet, expect further clearance at 14:55 Zulu*

I immediately slowed down on the principle that, if we took our time getting there, the reason for the hold might have gone away before we arrived. However, at 20 miles from Mont-Joli we duly turned into a right-hand hold. The slowing down helped because, before we had completed one turn, we were cleared out of the hold and our clearance limit was reset to Trois-Rivières. We never did find out what the issue had been but it was probably related to IFR traffic arriving for Rimouski and crossing our path ahead of us.

It was clear from the view north and the indication on the Strike Finder that there was significant convective activity (i.e., thunderstorms) on the north shore of the St Lawrence but we flew with no turbulence and no danger from storms. As we flew over Québec City the clouds started to break up and, by the time we were a few miles beyond the Québec VOR (YQB), we could see that it would be possible to continue VFR if we could descend through the large hole in the now broken undercast ahead of us. Flying VFR is much more convenient than flying IFR because there are no minimum altitudes to be maintained and the heading is at the pilot’s discretion. We therefore cancelled IFR but maintained the search-and-rescue part of our flight plan.²

We descended VFR to below the cloud base and flew the last 15 miles or so in good VFR conditions, landing, as on the outward trip, on runway 05.

¹ATC has no radar that functions at this altitude in this area so tracking is done by pilot reports—it was not until we were overhead Rivière-du-Loup that we were “radar identified”.

²An IFR flightplan really has two parts—the IFR routing and the search-and-rescue part akin to a VFR flightplan.

Chapter 12

Trois-Rivières → Ottawa Rockcliffe

12.1 Summary

Flight Rules	Visual
Date	12th August 2008
Departure	CYRQ
Destination	CYRO
Alternate	Not applicable
Route	YMX
Distance	135.0 nm
CoPilot Time Estimation	1 hour 27 mins
Actual Time	1 hour 30 mins

12.2 Planning

The planning for this trip called for patience and timing. We walked outside the terminal building and saw Towering Cumuli to the west. Trois-Rivières has a WiFi connexion in its *salon de pilotes* and we used this to watch the thunderstorms between us and Montréal on the radar. It seemed that they were moving south and east and, given time, would clear from our path home. I confirmed this with a Flight Service specialist and we spent a couple of hours picking blue-berries outside the terminal building. Finally a storm passed over us, soaking the airport and, once it had gone, the towering cumuli that we had seen to the west had disappeared.

Another look at the radar was enough to see that the main thunderstorm activity was now to the east of us, heading towards Québec City, and to the south of Montréal.

This confirmed our decision to repeat the route we had taken on the outward trip in reverse: direct to the Mirabel VOR (YMX) and then directly to Rockcliffe. The last few flights having been IFR, I was keen to fly this leg VFR if possible.

We filed a VFR flightplan and were assigned a squawk code of 0140 to allow us to enter the Ottawa airspace.

12.3 Flying

As we took off (again using runway 05) our Strike Finder was detecting an enormous area of activity to the east of the airport and this could be clearly seen through the window. We turned away from it and once at altitude (as close to 4500 feet as clouds would allow), requested Flight Following from Montréal Terminal. This allowed us to listen in to the jets arriving at Dorval and having to deviate around the build-ups that we could see (and that our Strike Finder was displaying) to the south.

As we approached Ottawa's airspace, we were handed off from Montréal Terminal to Ottawa Terminal for Flight Following on the remainder of the flight. We were directed to cross to the south bank of the Ottawa River (presumably to avoid Gatineau's zone) and to remain above 2500 feet (to avoid the VFR corridor traffic). We could see Rockcliffe from 30 miles out and eventually were switched to the Unicom frequency—home again after a fascinating journey.

Chapter 13

Summary

As promised in the introduction, this booklet describes a series of flights that were easy flying with no serious incidents. Most general aviation flying is of this type. Unfortunately the public normally only hears about the flights that end in tragedy.

The important points that I hope have come out from this booklet include the following:

1. I allowed myself to get behind the aircraft during the instrument approach into Sept-Îles—see chapter 9. I should have concentrated just on the instrument approach and not made premature assumptions about breaking out of the cloud.
2. We should have anticipated the issues associated with unattended airports, particularly at the weekend. Getting access to telephones was an issue and even physically getting out of the airport was sometimes difficult.
3. An IFR rating is a very useful next step for someone who has just got a Private Pilot licence. The trip described in this booklet could certainly have been flown VFR but it would probably have taken an extra couple of days and there might have been the temptation from time to time to “scud-run” below a low cloud layer. The IFR rating provides an extra set of options on any flight. Even so, the IFR flying we did was very “soft” IFR—we were generally between layers or above an undercast with no clouds above us. We probably spent no more than 45 minutes on the whole flight in solid cloud.
4. The CoPilot planning tool is remarkably accurate—see table 13.1. I have used the program for many years but, until putting this booklet together, have never really checked its accuracy. Since it is using nothing other than the simple mathematics associated with wind triangles, this means that whether the numbers are calculated manually, by an E6B or by a digital computer, navigation by Deduced

Leg	Copilot Prediction	Actual	Error
CYRO→CYRQ	1 hour 26 mins	1 hour 11 mins	15 mins
CYRQ→CYFE	2 hours 27 mins	2 hours 24 mins	3 mins
CYFE→CZV	1 hour 39 mins	1 hour 40 mins	1 min
CZV→CYNA	2 hours 2 mins	2 hours 11 mins	9 mins
CYNA→CYIF	1 hour 50 mins	1 hour 50 mins	0 mins
CYIF→CYBX	45 mins	43 mins	2 mins
CYBX→CYNA	2 hours 12 mins	2 hours 8 mins	4 mins
CYNA→CZV	1 hour 44 mins	1 hour 47 mins	3 mins
CZV→CYYY	1 hour 32 mins	1 hour 29 mins	3 mins
CYYY→CYRQ	2 hours 37 mins	2 hours 20 mins	17 mins
CYRQ→CYRO	1 hour 27 mins	1 hour 30 mins	3 mins
TOTALS	19 hours 41 mins	19 hours 13 mins	28 mins

Table 13.1: Predicted and Actual Times *en route*

(DED) Reckoning can be extremely accurate even when winds aloft are not known exactly.

5. For arrival and departure from the uncontrolled airports we visited, sufficient knowledge of French to understand the position of other aircraft in the circuit was essential. Luckily my wife understands French and was able to translate for me. As I said in chapter 2, this was particularly the case at Trois-Rivières where aircraft could be entering the circuit on base or straight-in.
6. The Strike Finder is an invaluable piece of equipment for summer flying.

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